



FLOOD RISK: CAN ANYONE FLOOD?

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State Coordinator

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Flood Mitigation Program

Protecting Lives, Protecting Property | Floodplain Management, Mapping, and Mitigation

www.dnr.sc.gov/flood

The Flood Mitigation Program and the NFIP



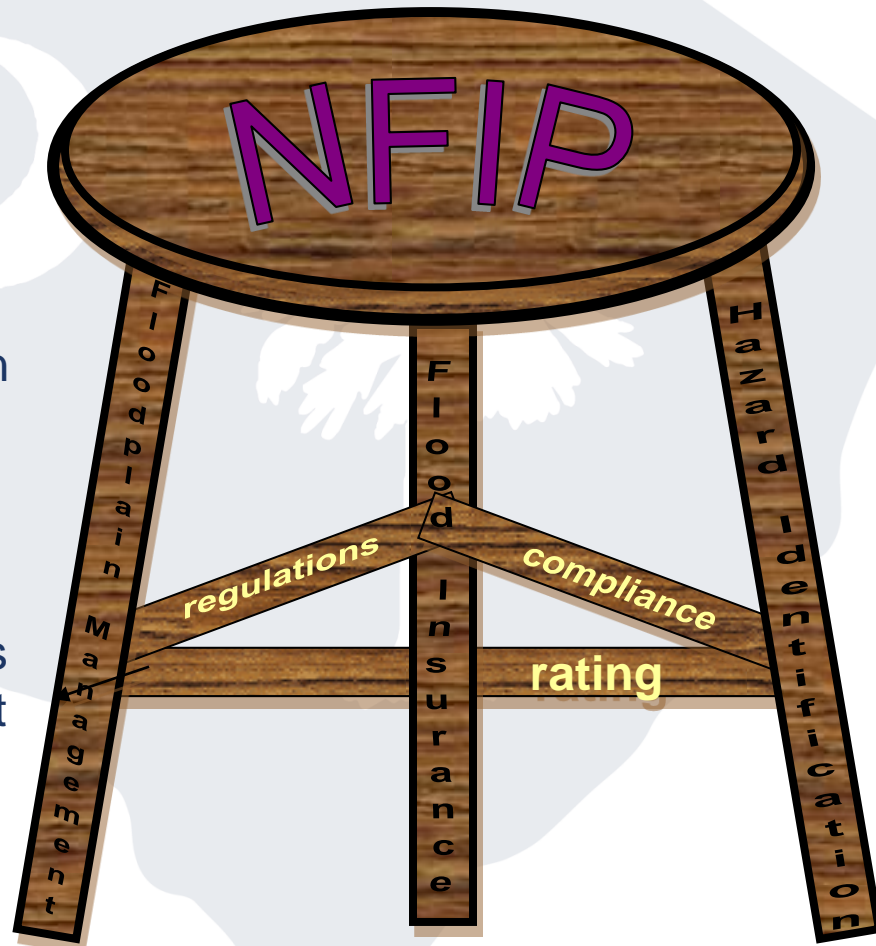
National Flood Insurance Program: Tying it all together

The NFIP balances three related areas that support each other.

- Floodplain mapping
- Floodplain Management
- Flood Insurance.

Mitigation also plays a huge role in the NFIP

SCDNR Flood Mitigation Program follows this comprehensive approach to the NFIP. This results in the program being able to assist communities with compliance issues, understanding regulations, mapping, grant programs and impacts to insurance ratings.



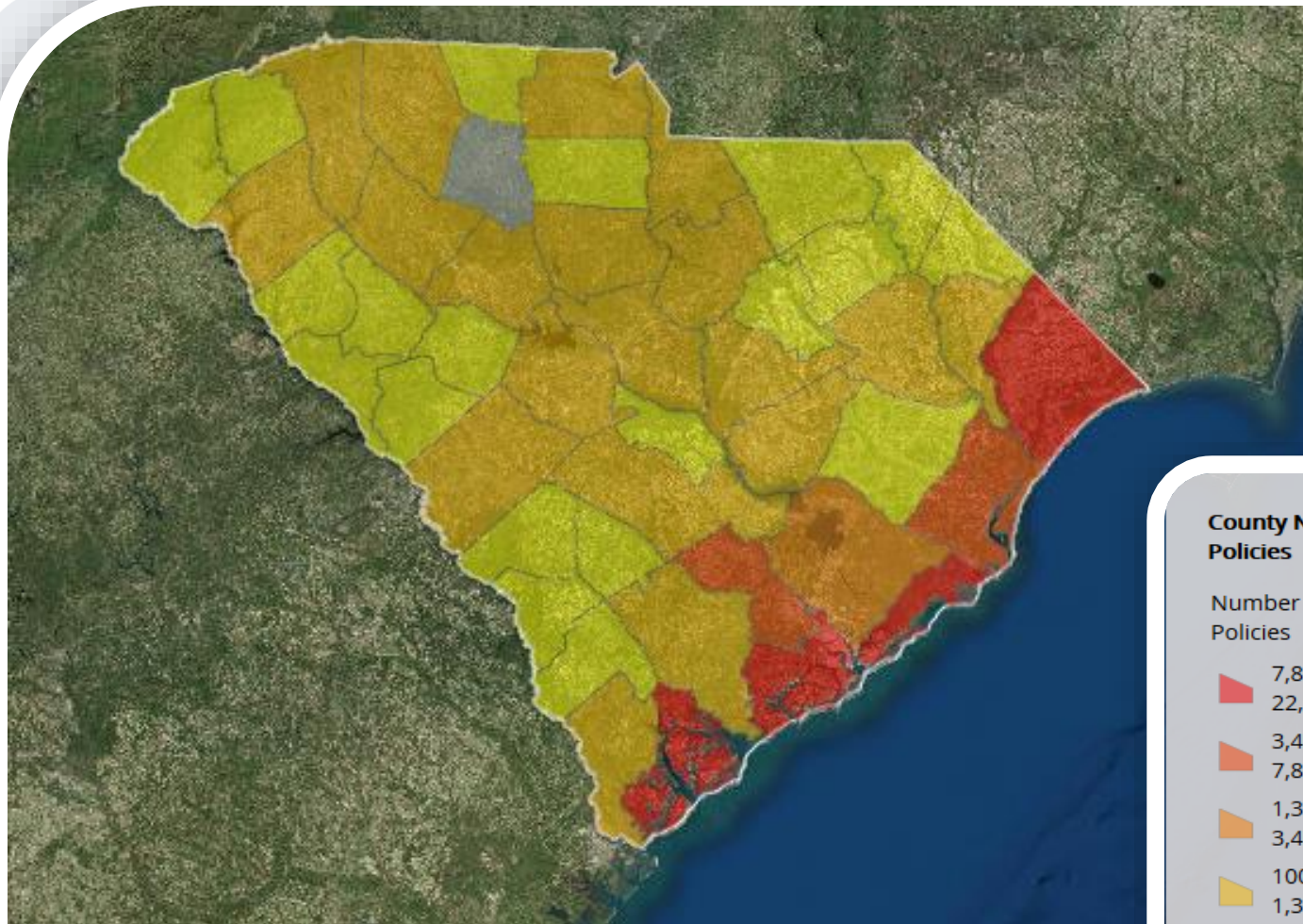
Mitigation

SC Flood Mitigation Program

- 235 communities participate in the NFIP (90%)
- SC has over 200,000 policies (6th in nation)
- Issued 12 studies preliminary since Oct 2015
- Accurate, up-to-date flood hazard information is crucial to protect lives and property

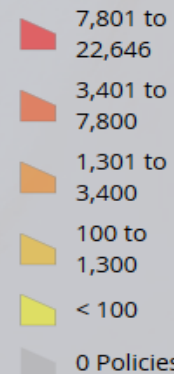


Policy Concentration

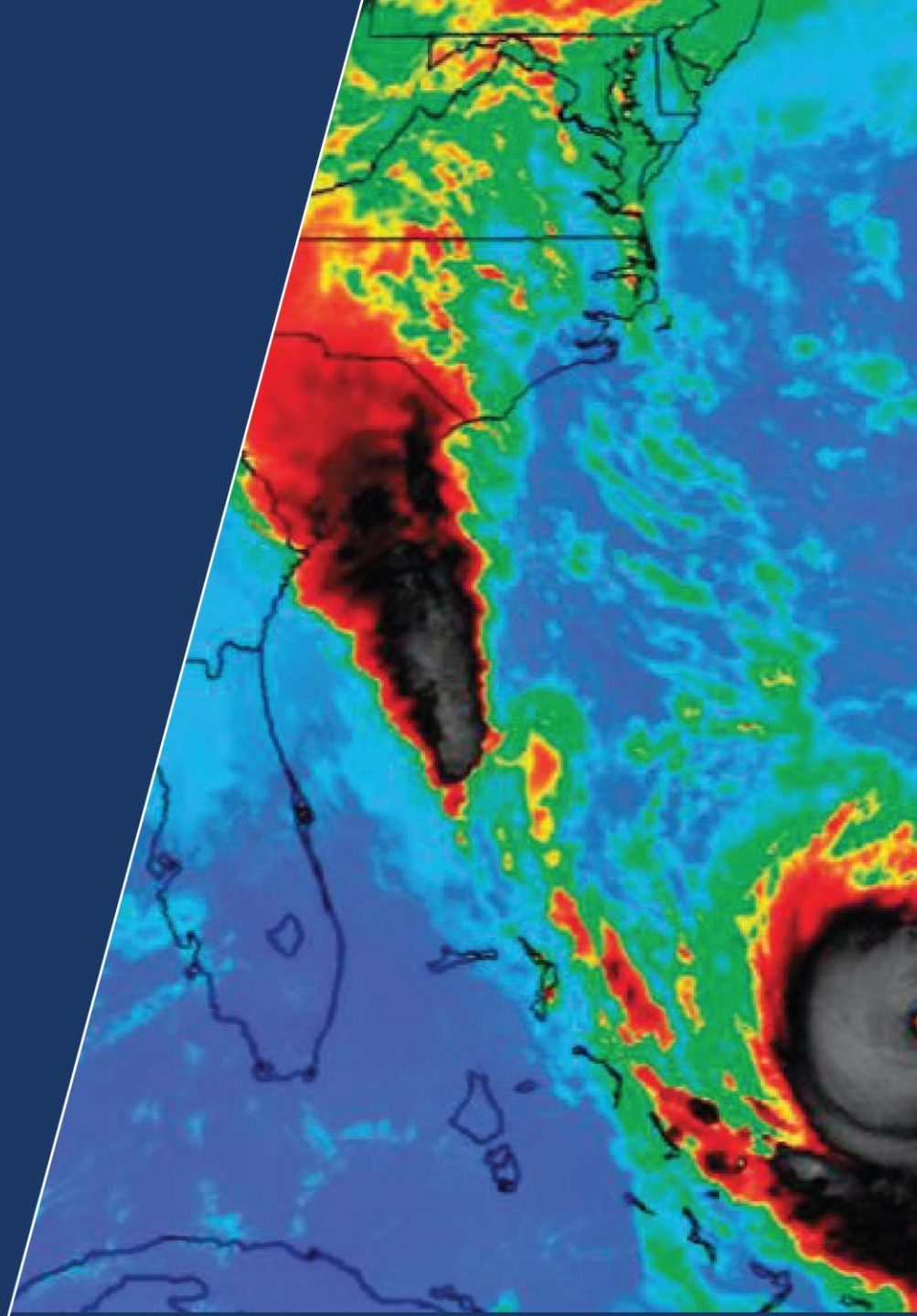


County NFIP Policies

Number of Policies



Floodplain Management



Floodplain Management

A program that has federal regulations that are **adopted and enforced** at the **local level** by ordinance.

Regulations

To be a participating member of the NFIP a community agrees to adopt and **ENFORCE** a Flood Damage Prevention Ordinance.

The ordinance must meet the minimum NFIP regulations outlined in the Code of Federal Regulations.



Higher Standards

Communities may adopt and enforce Higher Regulatory Standards.

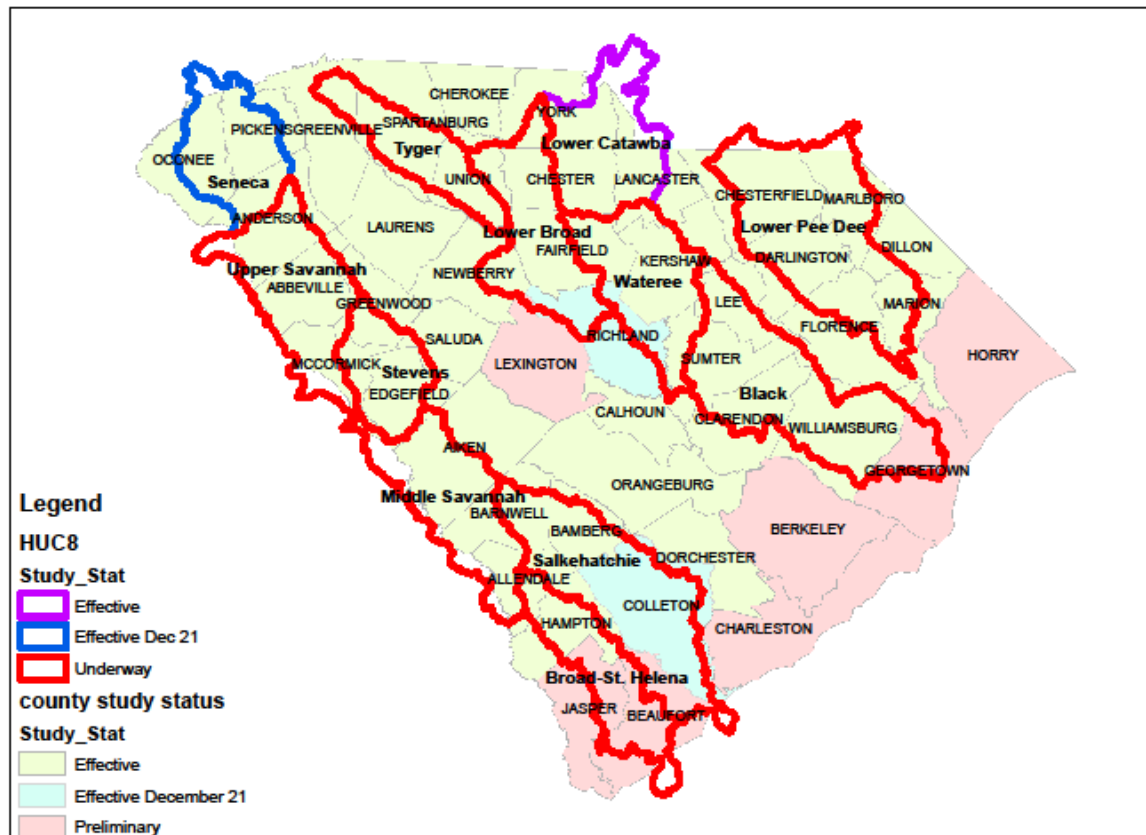
- Freeboard
- Cumulative substantial damage/Substantial Improvement
- No building in the Floodway



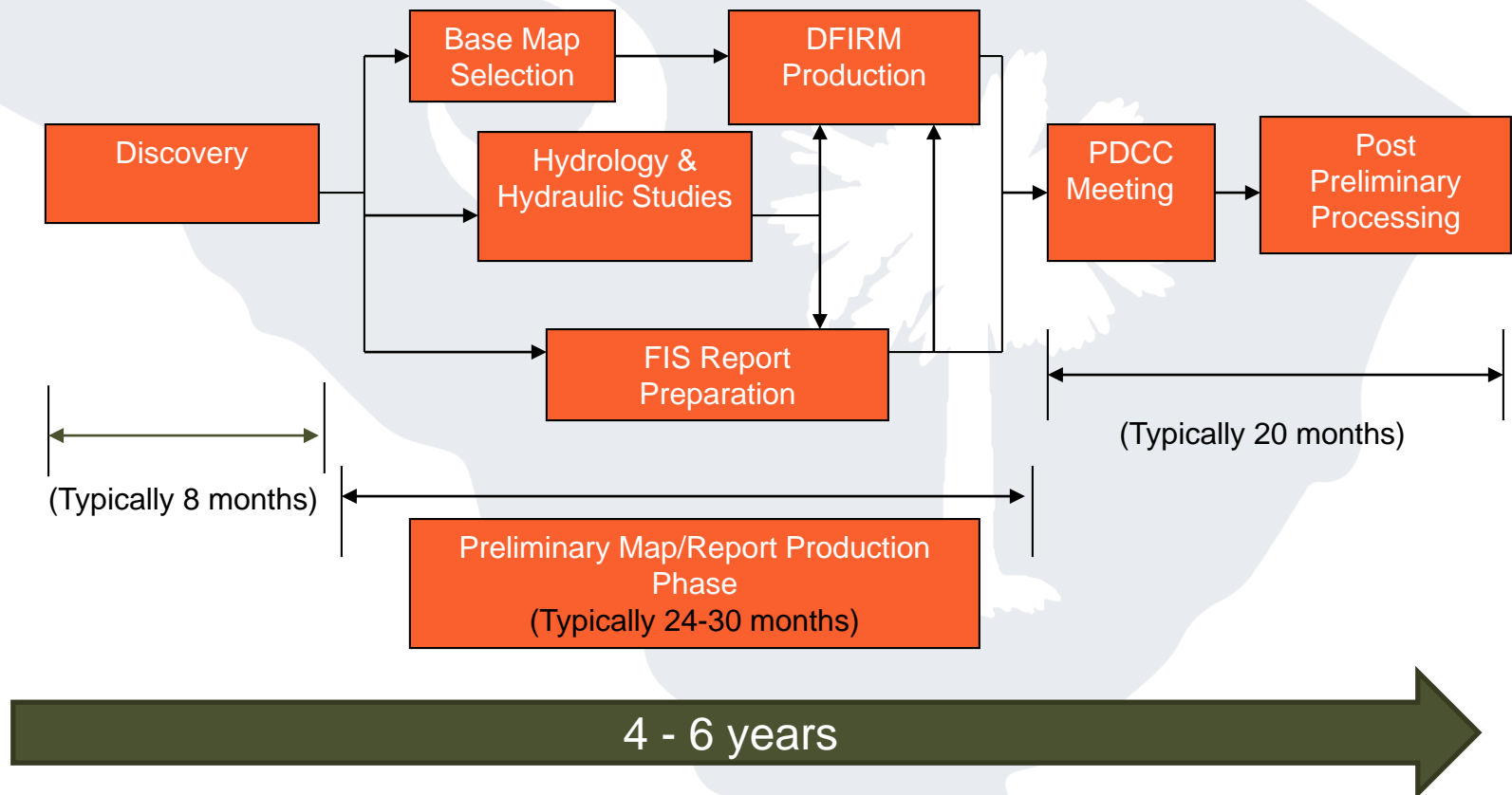
Mapping



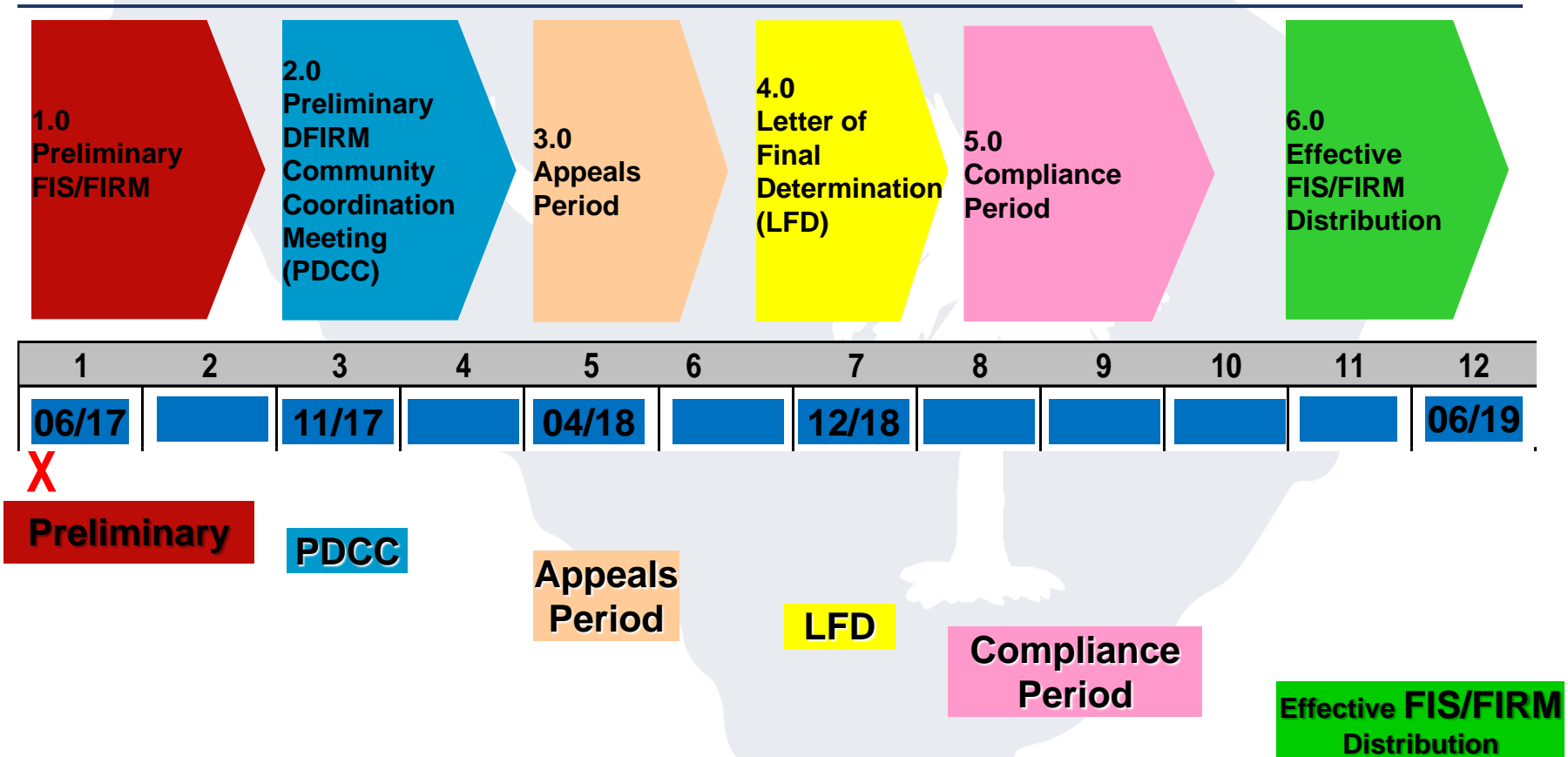
Map Status



Study Process Overview



Post-Preliminary Process



Actual time frames may vary

FIS: Flood Insurance Study
DFIRM/FIRM: Digital/Flood Insurance Rate Map



Types of Flooding



Columbia to the Coast

- Smooth, sandy channel
- Sandy with silt and clay soils
- Wide flat floodplains



Wide spread flooding



Deep water



Deep water



Water still up days later



Side Effects



High water

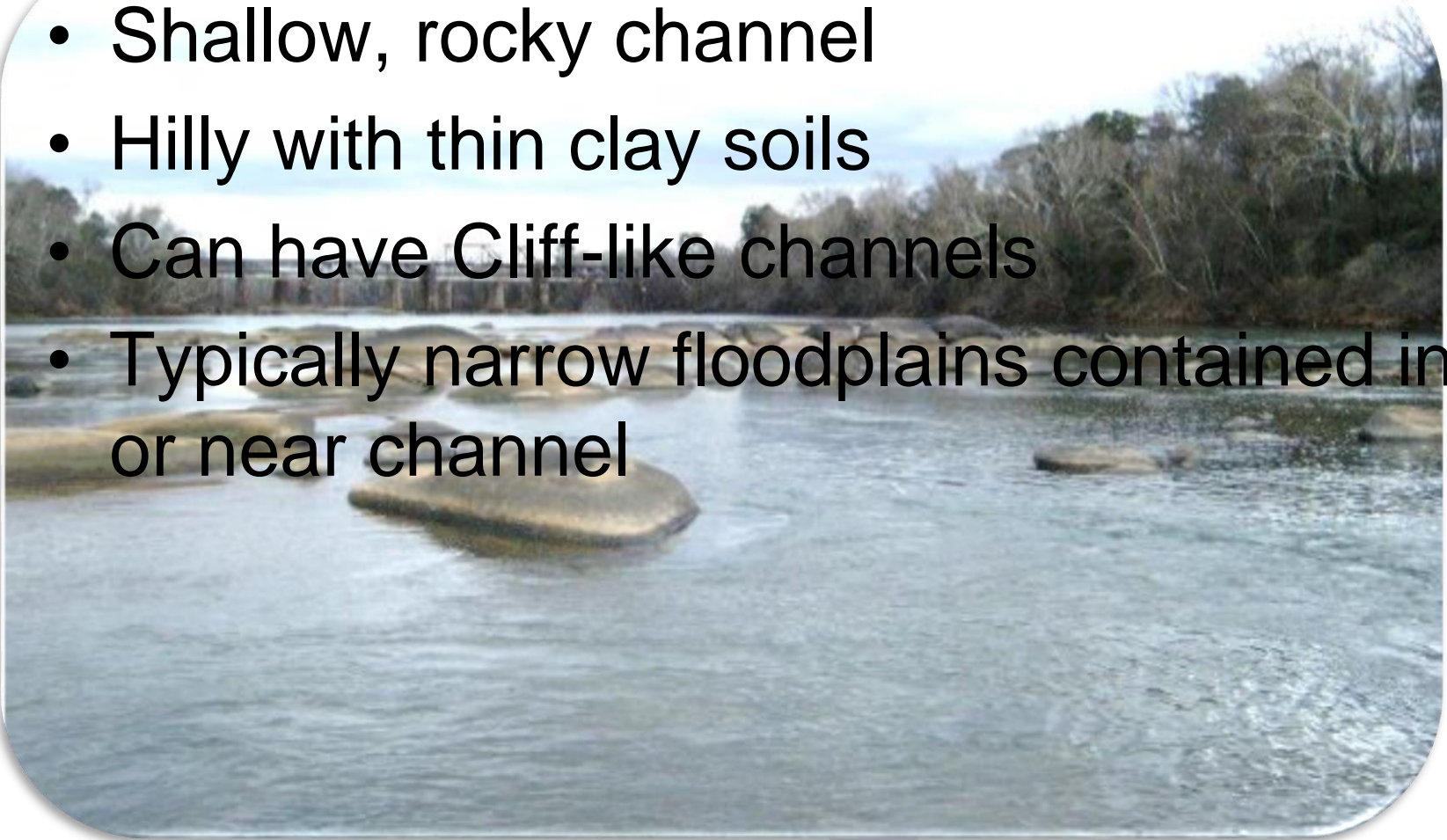


High water



Columbia through the Upstate

- Shallow, rocky channel
- Hilly with thin clay soils
- Can have Cliff-like channels
- Typically narrow floodplains contained in or near channel



Off Foundation



High Velocity: Debris



Mud in houses



Structural Damage



Structural Damage



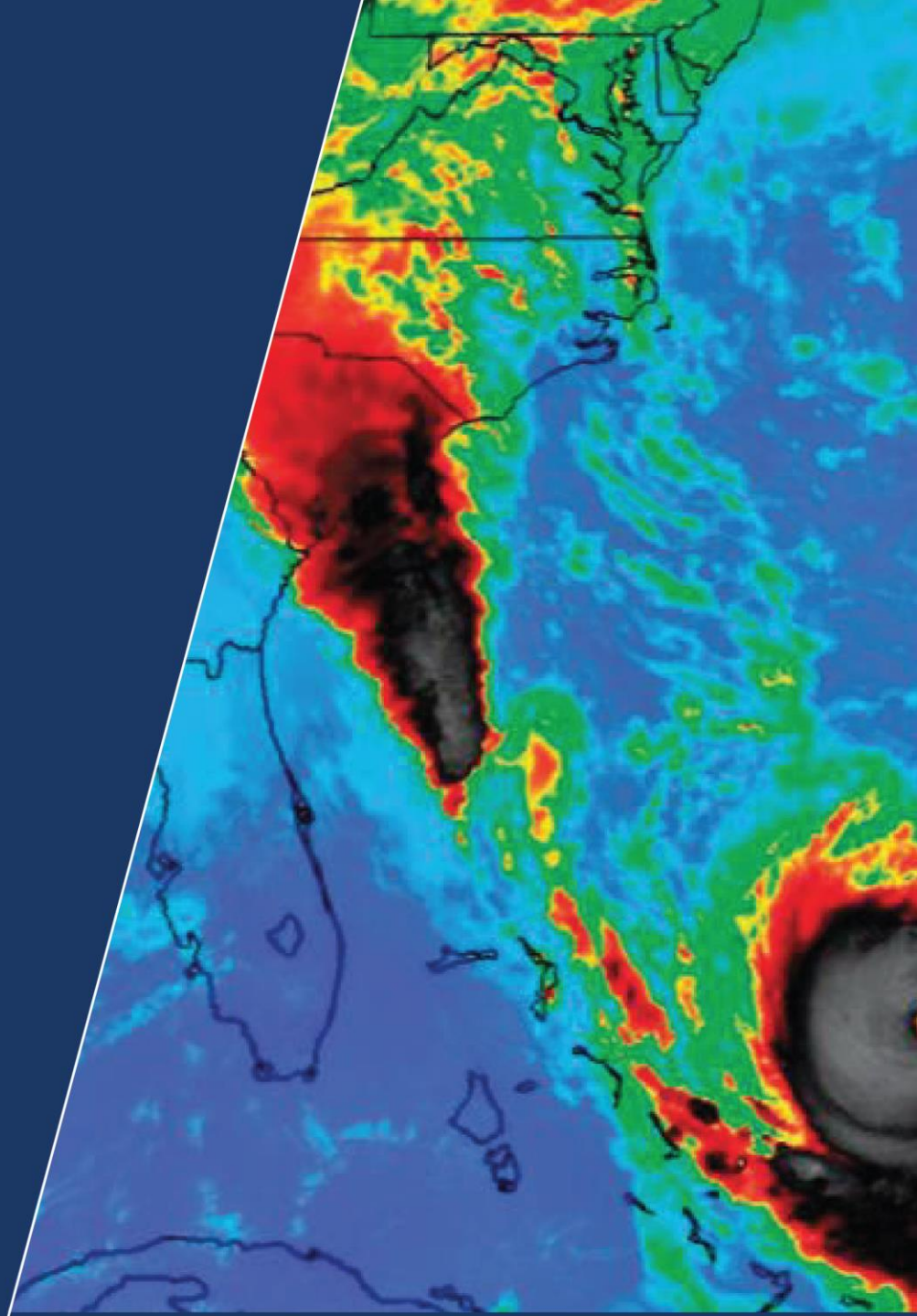
Things out of place



Human Impact: Belongings

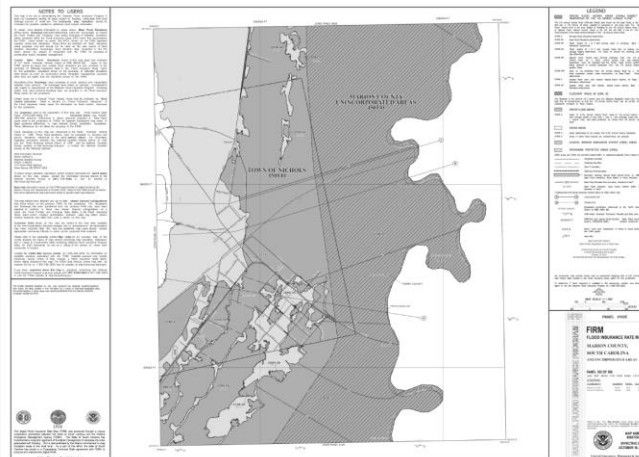


Relaying True Flood Risk



Beyond Traditional Flood Maps

- Changing our message from in or out of the regulatory floodplain to Low, Moderate or High Risk
- Create Flood Risk Products that assist in relaying True Flood Risk



True Flood Risk

**Determine your flood risk.
Everyone has a risk.**

Low Risk

- Zone X (Unshaded)

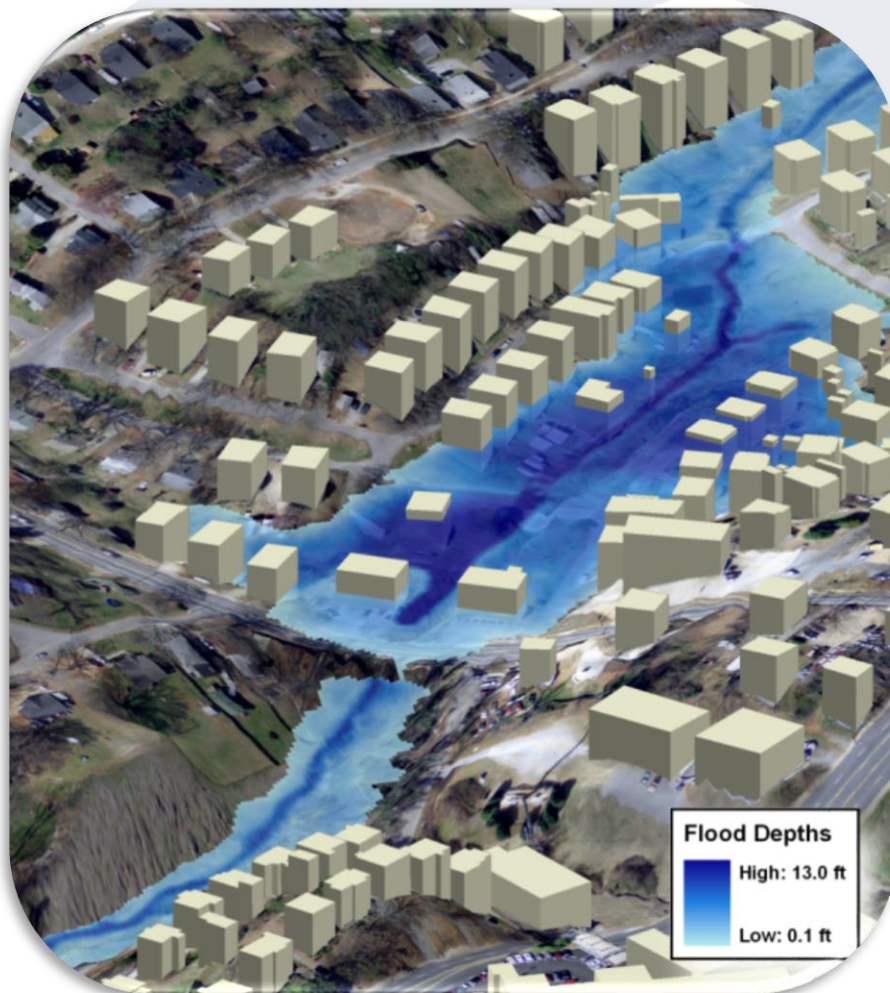
Moderate Risk

- Zone X (Shaded)
- 0.2 % Annual Chance flooding

High Risk

- Special Flood Hazard Area (SFHA)
- Zone A, AE, AH, AO, or VE

Risk MAP Products



Depth Grids



Identify

Identify from: <Top-most layer>

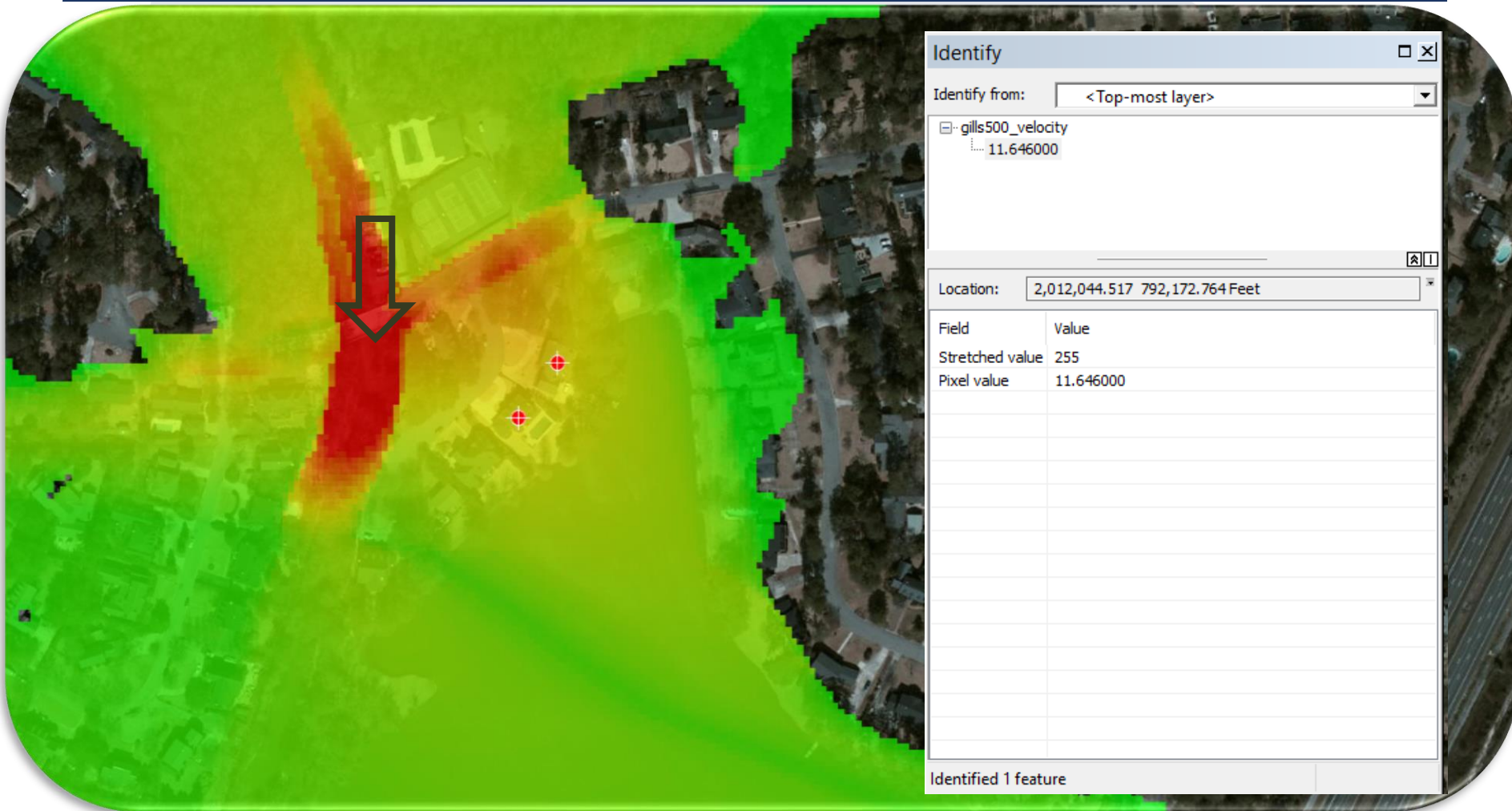
DepthELEV2.asc
5.100000

Location: -80.959274 34.010291 Decimal Degrees

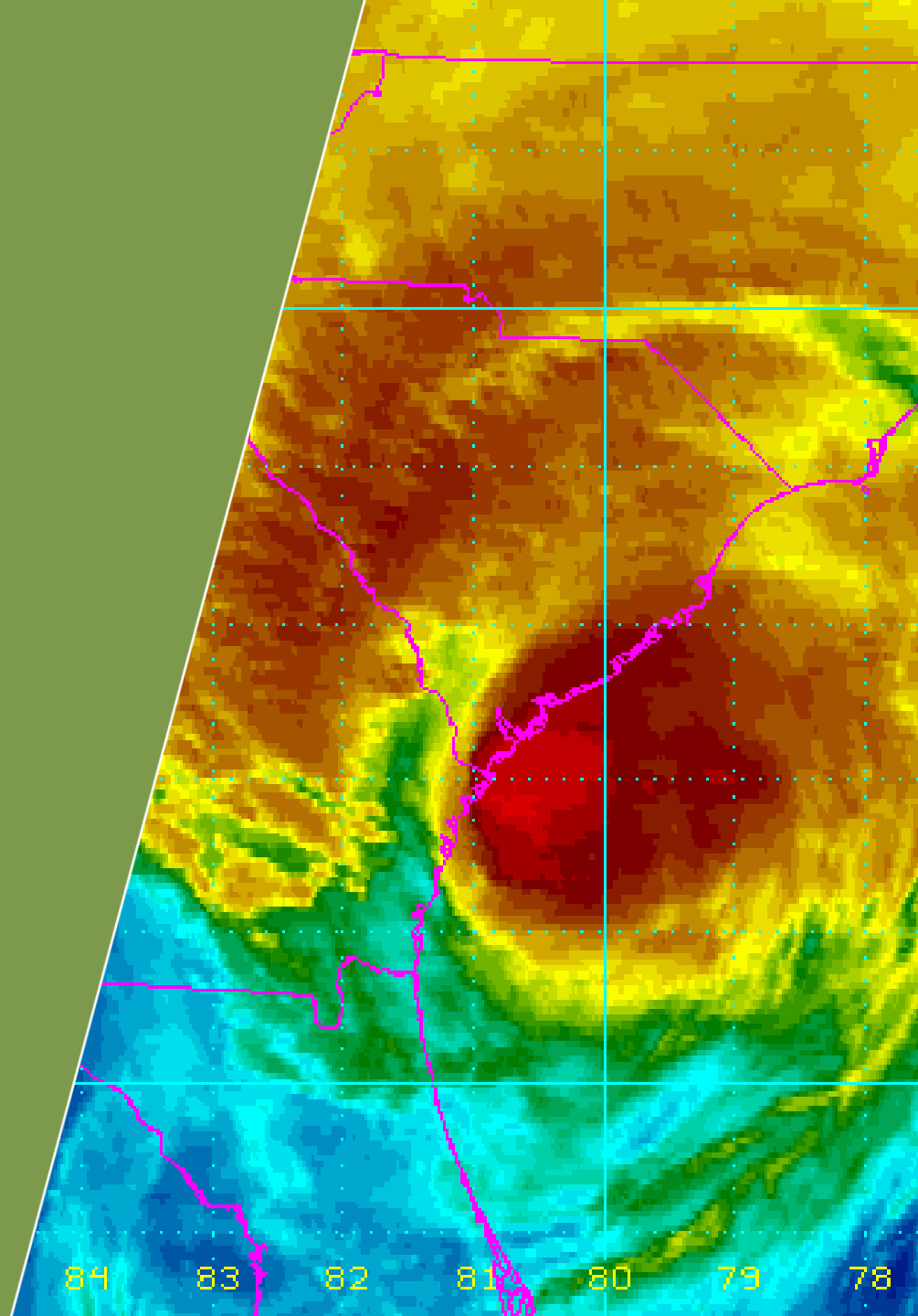
Field	Value
Stretched value	63
Pixel value	5.100000



Velocity Grids

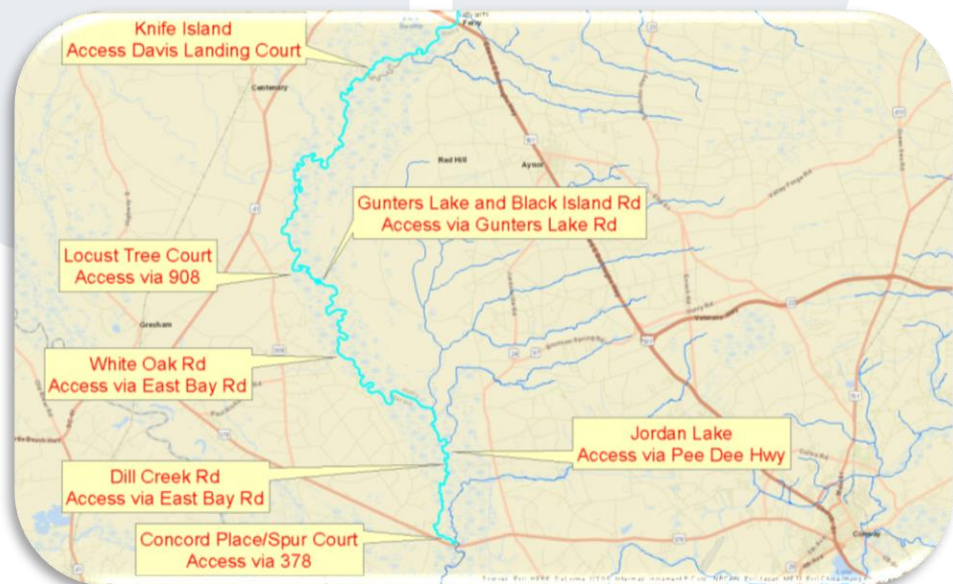


Response and Recovery



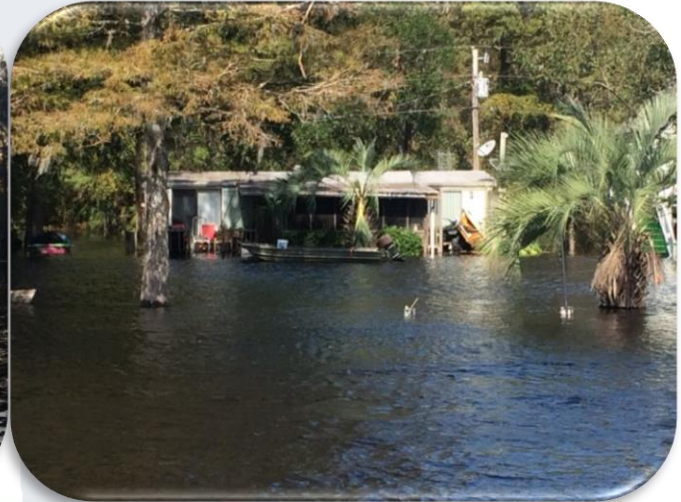
Response & Recovery

- In 2016, produced inundation information and peak arrival time estimates
- Provided specialized information for officers in the field



Response & Recovery

- Officers shared info from the field to verify inundation



Drone Ortho Overlay



Response & Recovery

- Word got out
 - SCDOT – use to assist in determining what roads to close and for how long
 - SCDNR Wildlife and Freshwater Fisheries – used to assist in determining where to close hunting season
 - Local Floodplain Managers – used to assist in evacuations
 - SCDHEC – used Drone information from Nichols



Response & Recovery

Recovery will move slower in other areas



Response & Recovery

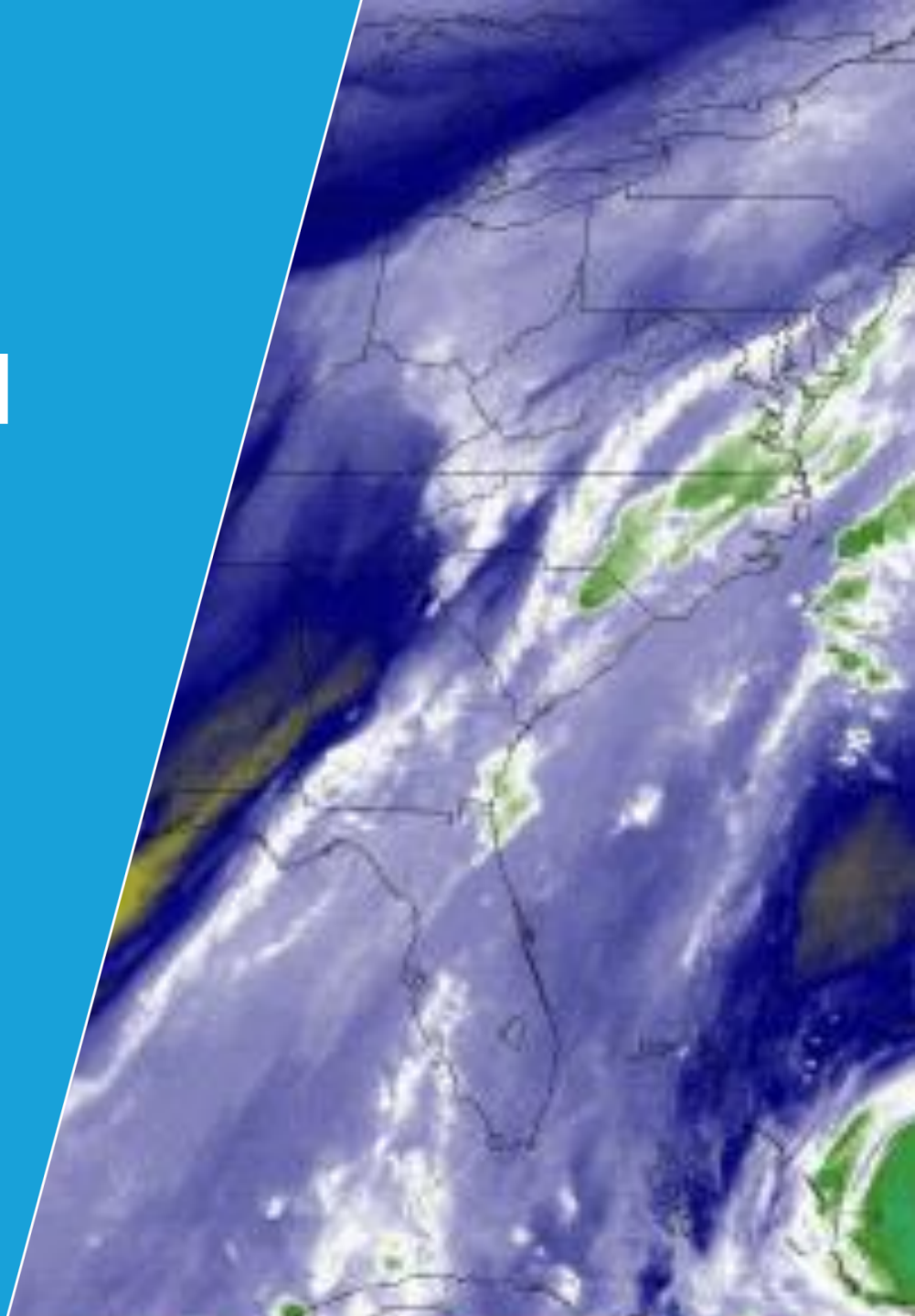
Really slow in some areas



Response & Recovery



Lessons Learned



Lessons Learned

- People don't always read or understand information provided to them
 - Communication/Outreach/Education imperative
- Verify data – if something doesn't look right, investigate
- Decision Makers need tools that easily convey and advance an understanding of flooding
- Officials requested a more dynamic, visual, and interactive flood model for use during disasters


Path Toward Resilience

- Dedicated website
 - Platform to display digital data
 - Develop SC specific database
 - Flood warning system
 - Downloadable data and models

Path Toward Resilience

- Flood warning system
 - Statewide, seamless system
 - Real-time mapping
 - State-of-the art tools and approach
 - Integrate riverine and coastal hazards
 - Holistic approach
 - Plan, Prepare, Respond, and Recover





COMMENTS & QUESTIONS



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